



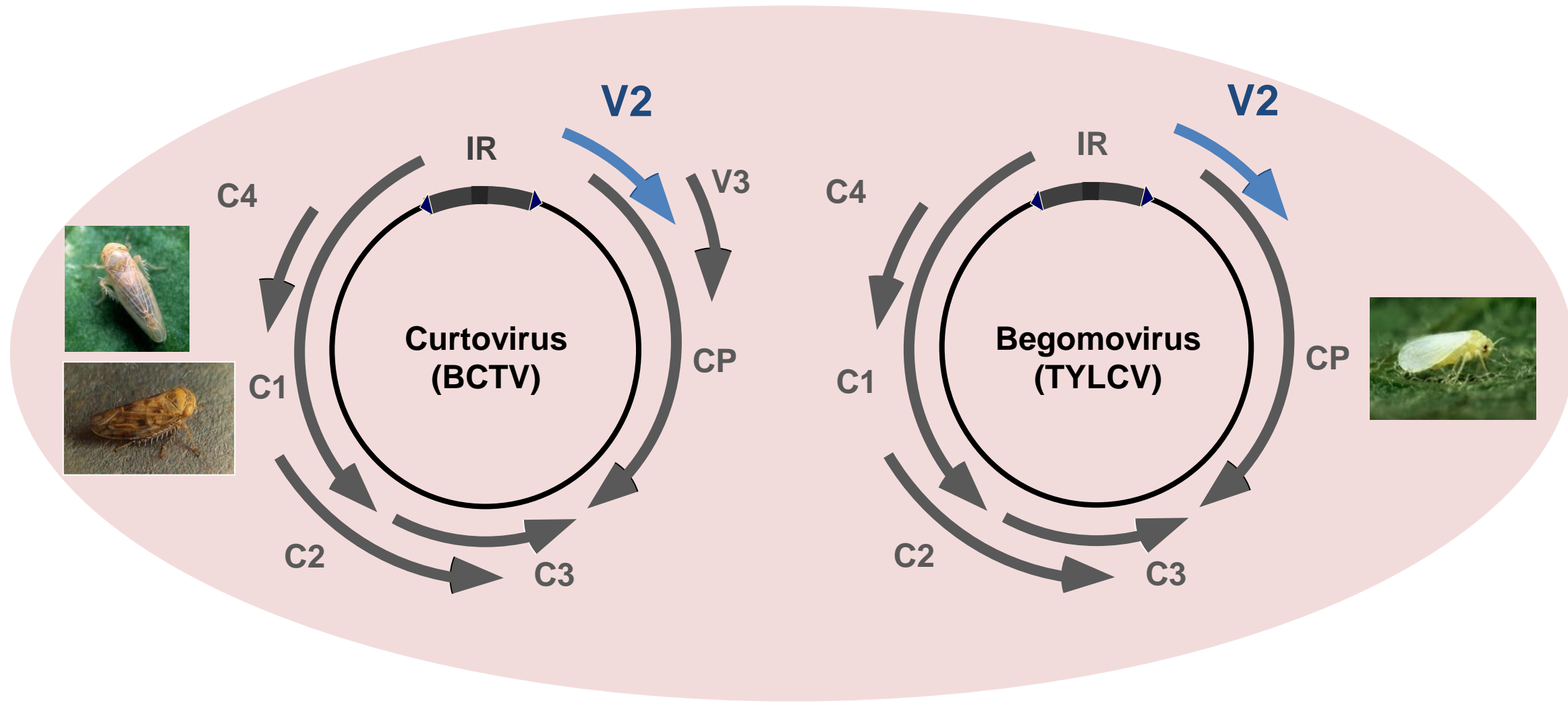
Study of the functional domains of the PTGS suppressor V2 from geminivirus *Beet curly top virus* (BCTV)



ANA P. LUNA*, EDGAR A. RODRÍGUEZ-NEGRETE, GABRIEL MORILLA, ARACELI G. CASTILLO and EDUARDO R. BEJARANO

**For correspondence (Ana P. Luna. Instituto de Hortofruticultura Subtropical y Mediterránea “La Mayora” (IHSM-UMA-CSIC), Área de Genética, Facultad de Ciencias, Universidad de Málaga, Campus de Teatinos s/n, E-29071 Málaga, Spain. Tel: +34 952134269; e-mail analuna@uma.es.*

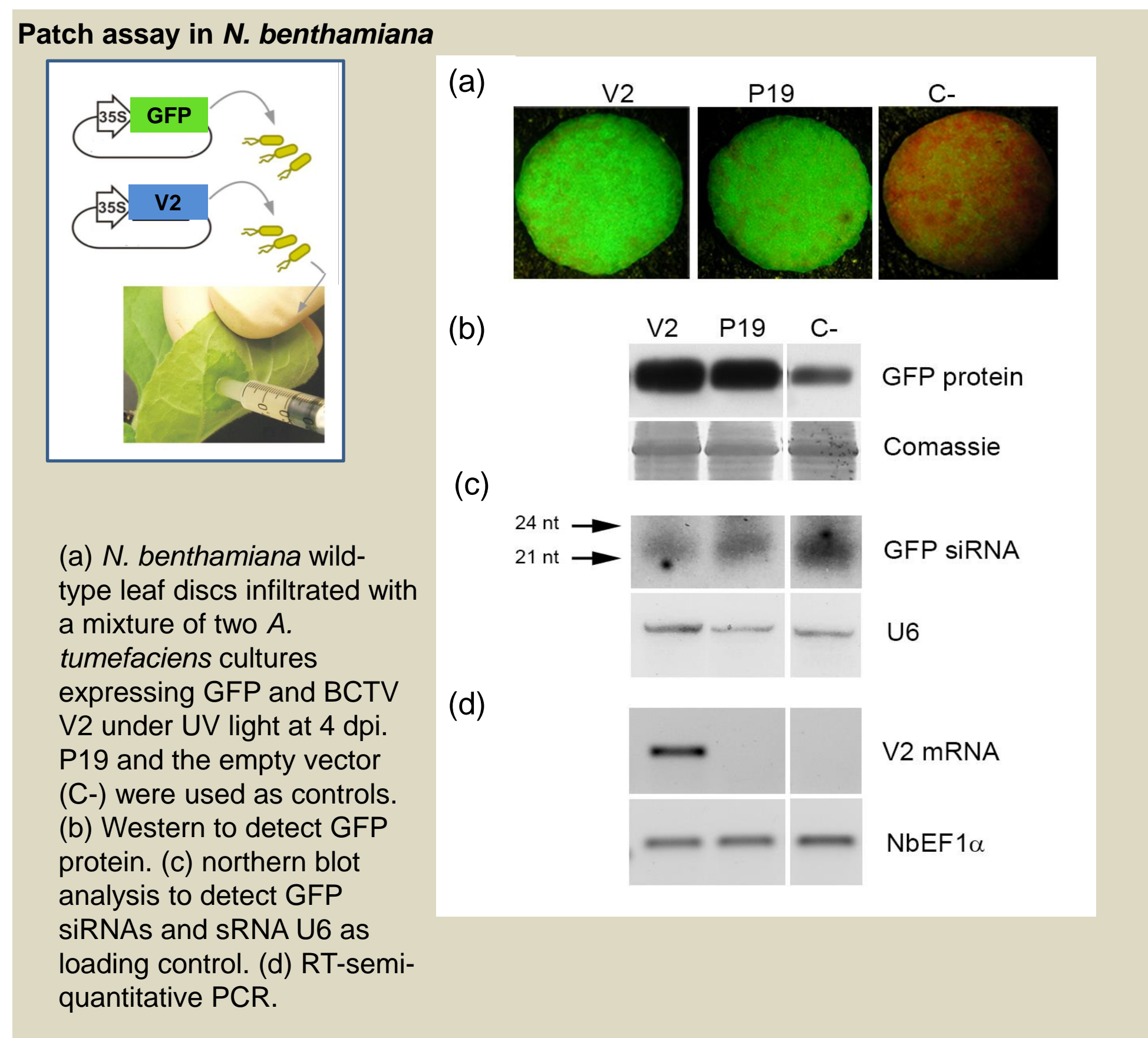
Geminiviruses constitute a group of plant viruses with circular, single-stranded DNA genomes packaged within geminated particles that infect a wide range of plants¹. Among the *Geminiviridae* family, the genus *Mastrevirus*, *Begomovirus* and *Curtovirus* comprise most of the viral species capable of infecting dicotyledonous plants. Monopartite begomovirus and curtovirus possess similar genome structures².



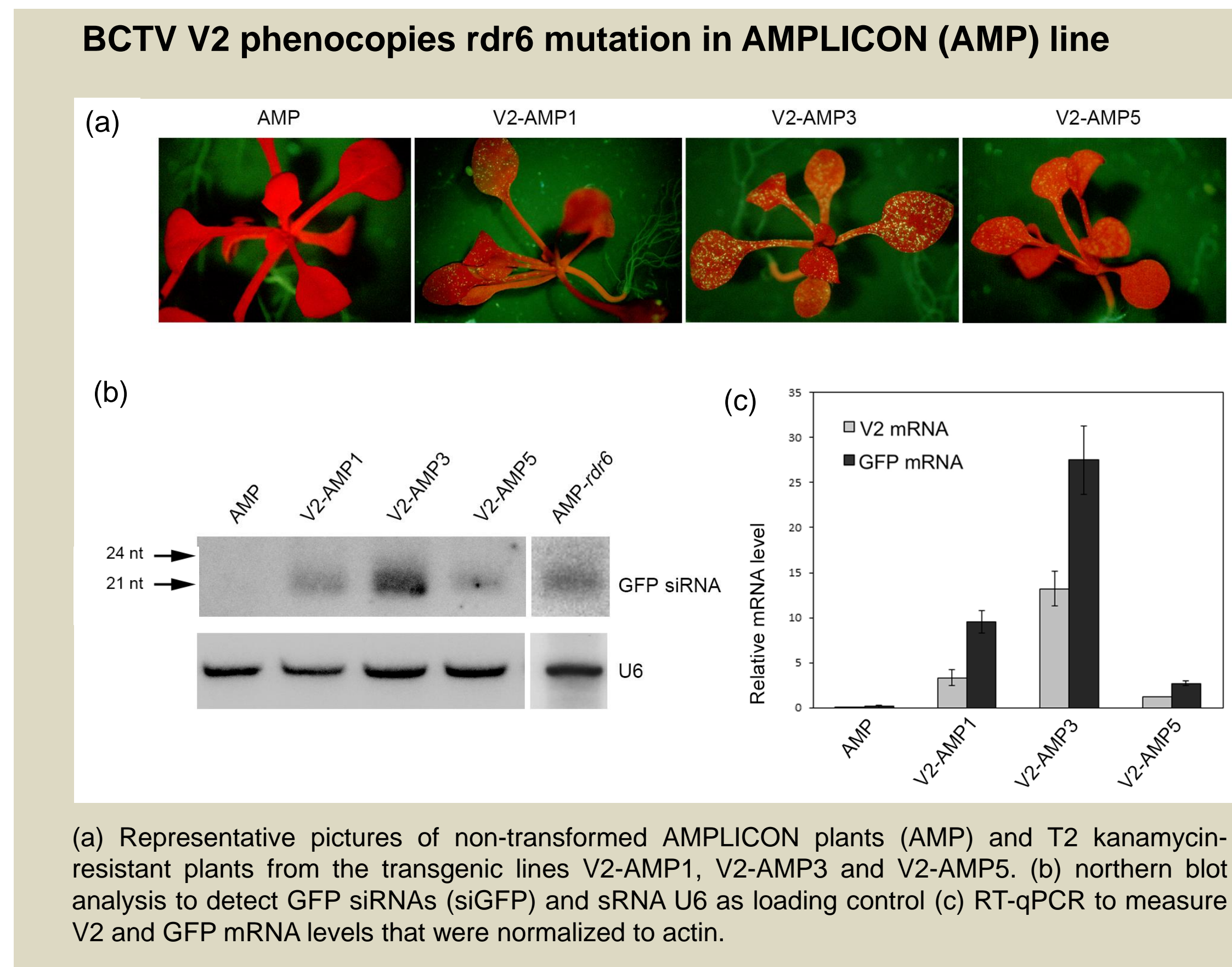
In plants, **RNA silencing** is an important antiviral mechanism. Geminiviruses must confront both transcriptional (TGS) and Post-Transcriptional Gene Silencing (PTGS) to achieve successful infections^{3,4}. V2 from Old World begomoviruses and from curtovirus BCTV has been described as a PTGS and TGS suppressor^{5,6,7,8,9,10,11,12,13}.

V2 proteins from curtovirus and begomovirus have similar functions

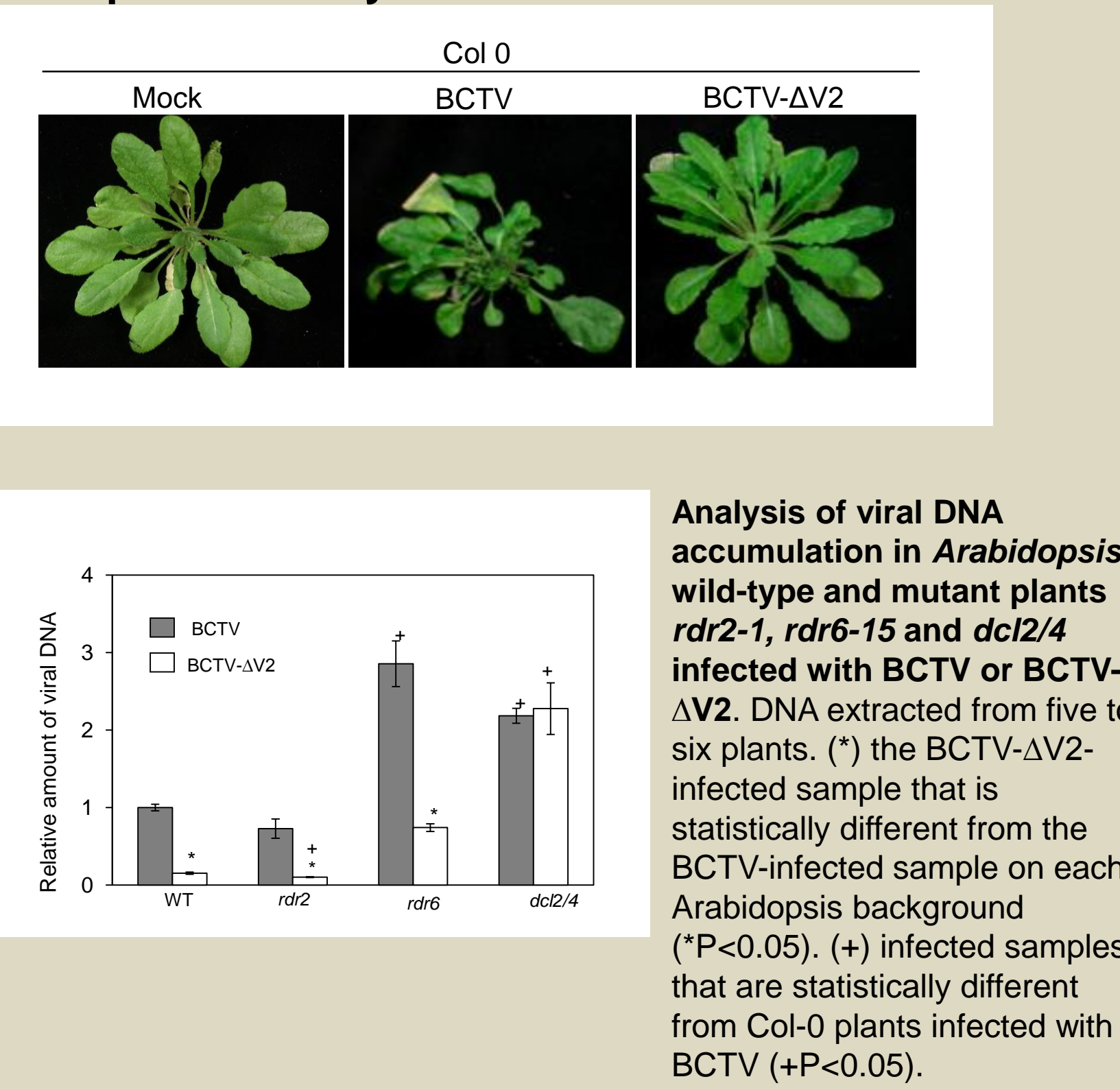
1. Strong local PTGS suppressors



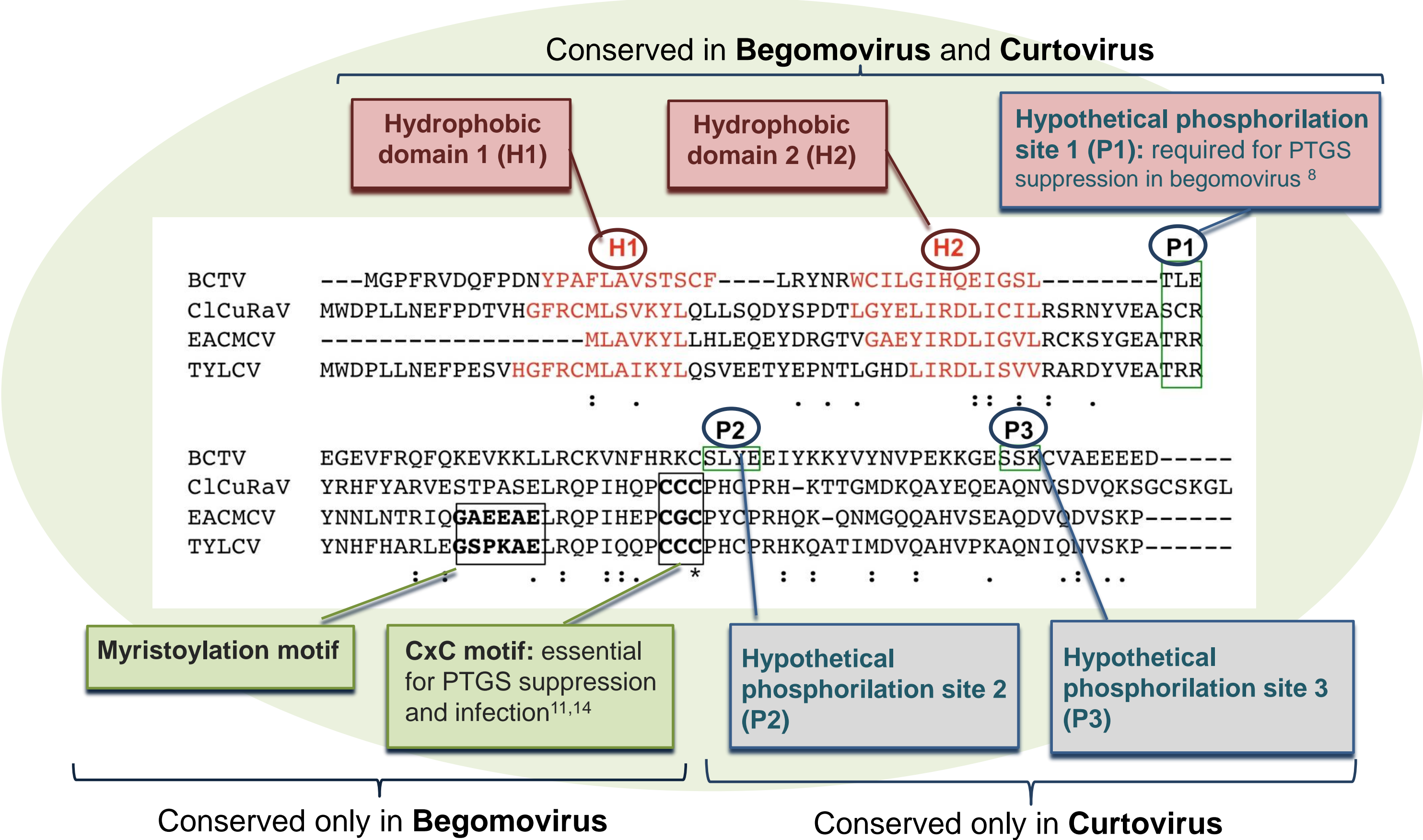
2. Act on RDR6/SGS3 silencing pathways



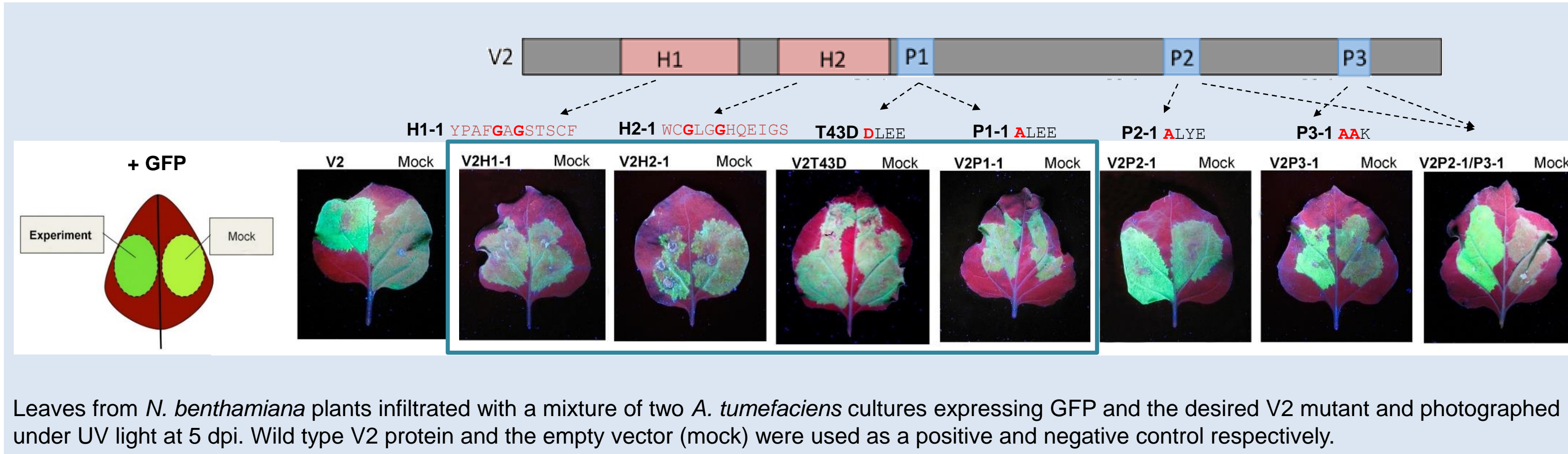
BCTV V2 is essential for infection and can be complemented by mutation in *rdr6* or *dcl2/4*.



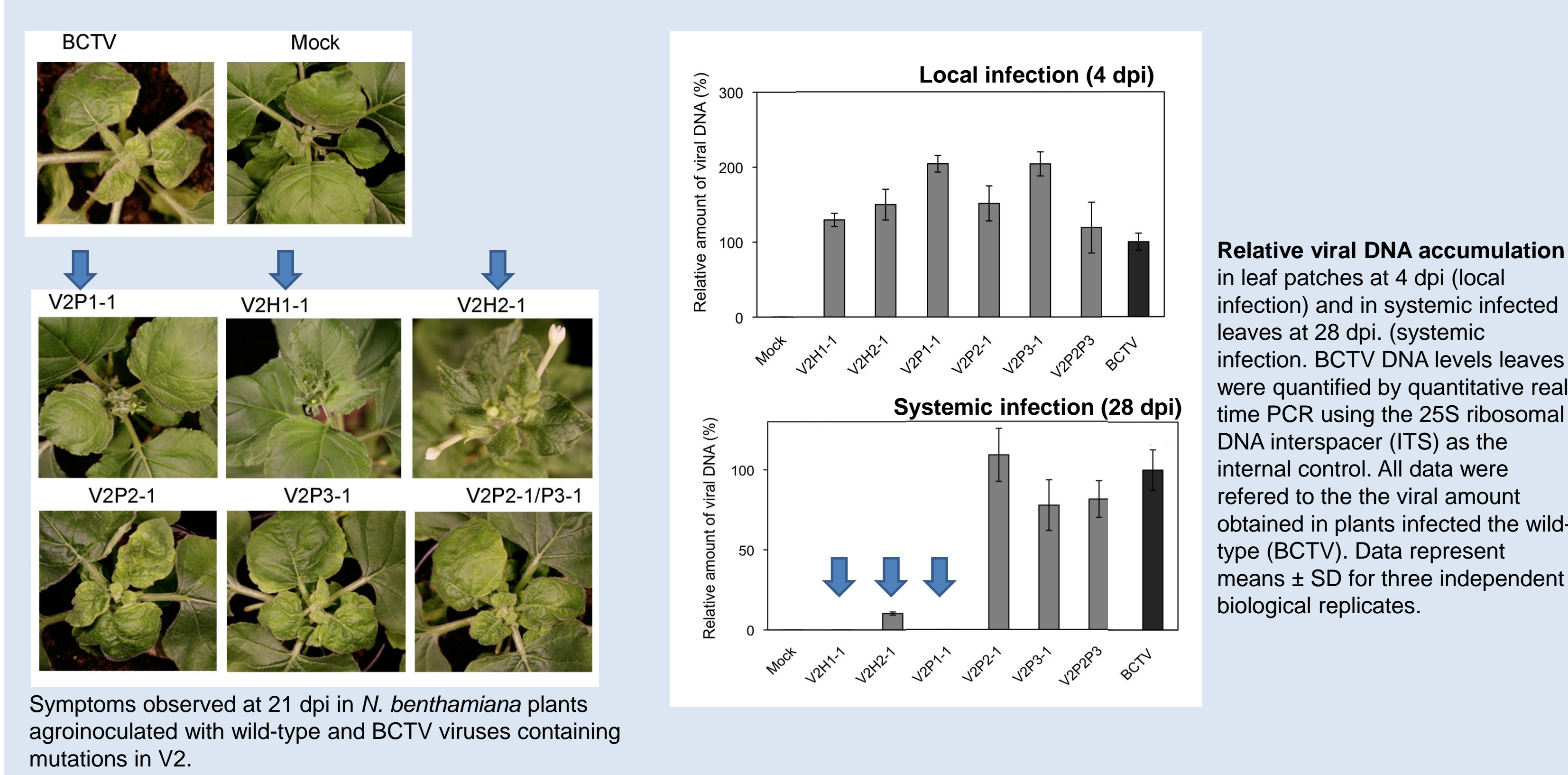
In spite of the low homology, V2 proteins contain some conserved domains



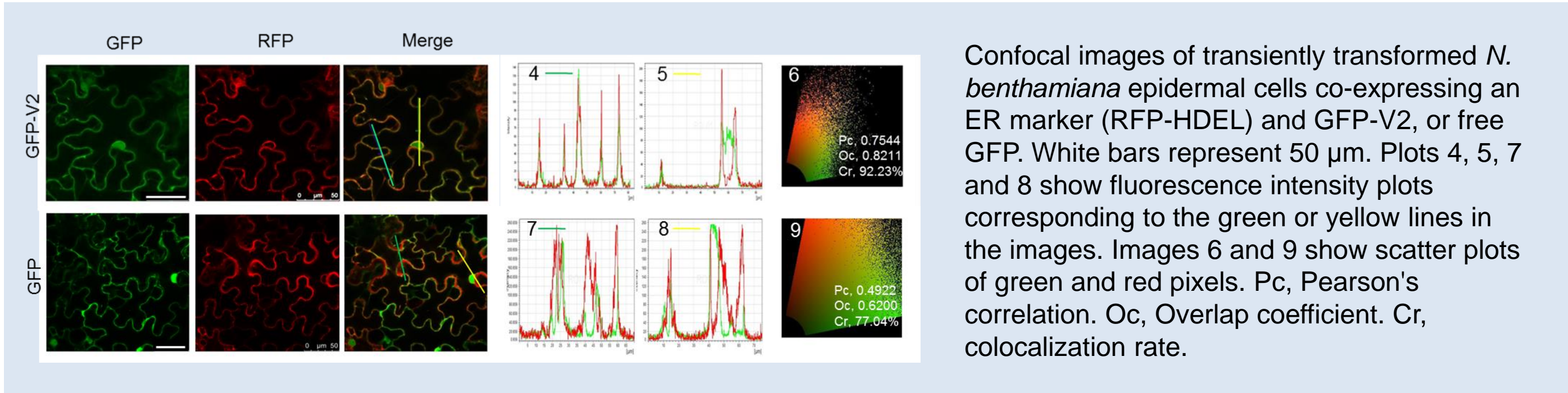
H1 and H2 domains and the phosphorylation site P1 are required for PTGS suppression activity



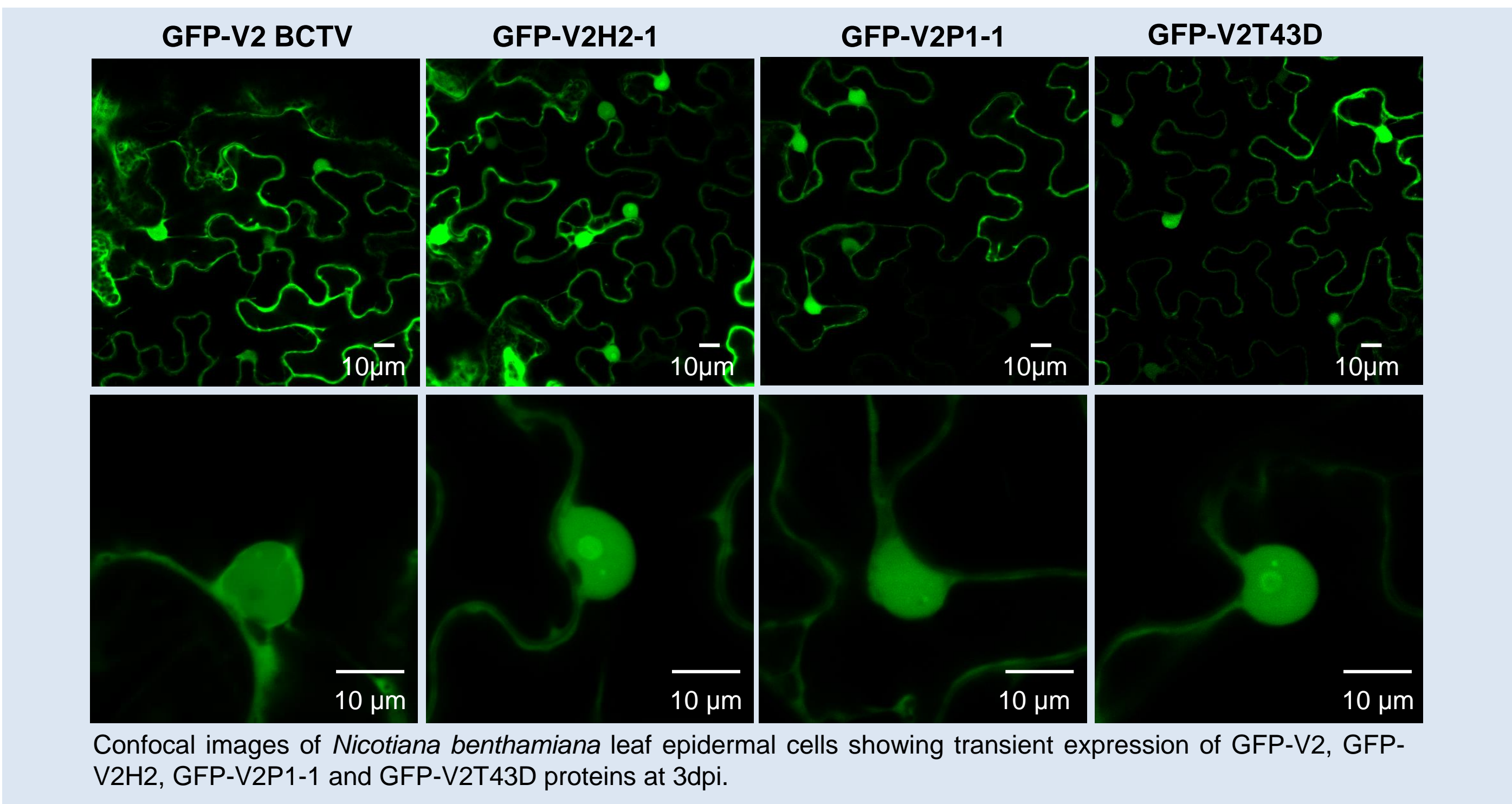
H1, H2 and P1 are required for systemic but not for local BCTV infection



BCTV V2 (as TYLCV V2) is localized in nucleus and ER



Mutations in H2 or P1 do not change subcellular localization of BCTV V2



Mutations in H1, H2 and P1 cause a reduction in the symptoms produced by BCTV V2 expression from PVX

